What is claimed is:

1. An optical fiber fusion splicer comprising:

a setting means for setting respective end surfaces of two optical fibers that are to be spliced in order to abut against each other;

a heating means for generating an arc discharge between two discharge electrodes and heating an abutment portion of said optical fibers using a discharge beam;

an image pickup means for picking up an image of said discharge beam; and

a control means for measuring, from image signals obtained by said image pickup means when a preliminary arc discharge is generated between said discharge electrodes when no optical fibers have been placed in a discharge area, brightness distributions on a plurality of lines that are set at different positions along a rectilinear direction between said discharge electrodes and run in a direction substantially at right angles to the rectilinear direction, estimating a heating center from the plurality of brightness distributions, subsequently controlling said setting means such that the abutment portion of said two optical fibers is positioned in the heating center; and thereafter controlling said heating means such that a main arc discharge is generated and said abutment portion is heated by said discharge beam.

2. A optical fiber fusion splicer according to claim 1, wherein said control means controls said heating means such that the preliminary arc discharge in which said brightness distributions are estimated is performed with the current during the preliminary arc discharge smaller than the current during the main arc discharge in which said abutment portion is heated.

3. A discharge beam estimating method, wherein in an optical fiber fusion splicer comprising; a setting means for setting respective end surfaces of two optical fibers that are to be spliced in order to abut against each other, and a heating means for generating an arc discharge between two discharge electrodes and heating an abutment portion of the optical fibers using a discharge beam; and the method comprising the steps of:

picking up an image of the arc discharge generated between the discharge electrodes when no optical fibers have been placed in a discharge area;

estimating brightness distributions on a plurality of lines that are set at different positions along a rectilinear direction between the discharge electrodes and run in a direction substantially at right angles to the rectilinear direction on the image; and

estimating a discharge beam shape from the plurality of brightness distributions.